

## **RAW SEQUENCE LISTING**

**The Biotechnology Systems Branch of the Scientific and Technical  
Information Center (STIC) no errors detected.**

Application Serial Number: 10/563,637  
Source: IFWP  
Date Processed by STIC: 02/08/2007

# ***ENTERED***



IFWP

## RAW SEQUENCE LISTING

DATE: 02/08/2007

PATENT APPLICATION: US/10/563,637

TIME: 11:51:09

Input Set : A:\19460.seq.txt

Output Set: N:\CRF4\02082007\J563637.raw

3 <110> APPLICANT: Franco, Christopher Milton Mathew  
 4 Coombs, Justin Taylor  
 6 <120> TITLE OF INVENTION: A method and agents for improving plant productivity  
 involving

7 endophytic actinomycetes and metabolites thereof

9 <130> FILE REFERENCE: 19460

11 <140> CURRENT APPLICATION NUMBER: 10/563,637

12 <141> CURRENT FILING DATE: 2006-01-06

14 <160> NUMBER OF SEQ ID NOS: 33

16 <170> SOFTWARE: PatentIn version 3.1

18 <210> SEQ ID NO: 1

19 <211> LENGTH: 1158

20 <212> TYPE: DNA

21 <213> ORGANISM: actinomycete

23 <220> FEATURE:

24 <221> NAME/KEY: misc\_feature

25 <222> LOCATION: (1)..(1155)

26 <223> OTHER INFORMATION: "n" is unknown nucleotide

29 <400> SEQUENCE: 1

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 32 ttaacacntg antaacctgc ccctgactct ggggataanc tgggaaactg ggtctaatac 120  
 34 cggatacaac catttctcnc atgggatggt ggtggaaant ttttncggtt ggggatgggc 180  
 36 tcgcggccta tcacctgtt ggtggggatga tggcctacca aggcgacgaa cggtagcccg 240  
 38 cctgagaggg cgaccggcca cactgggact gagacaccgc ccgaactcct acgggaggca 300  
 40 gcaactggga atattgcccc tgggcggaag cctgacgcag ngacgcgcgc tgggggatga 360  
 42 cggccttngg gttgtaaacc tntttcagca gggacgaagt tgacgtgtac ctgtagaaga 420  
 44 agcgcgggct aaatangtc cagcagcgcg ggtaatangt agggcgcgag cgttntccgg 480  
 46 aattattggg cgtaaagagt ttgtaggtgg cttgttgctt ttgccgtgaa agcccgtggc 540  
 48 ttaantacgg gtttgcggtg gatacgggca ggctagaggc tggtaggggc aagcggaatt 600  
 50 cctggtgtag cggtgaaatg cgcagatata aggaggaaca ccggtggcga aggcggcttg 660  
 52 ctgggccagt tctgacggtg aggagcgaaa gcgtggggag cgaacaggat tagataccct 720  
 54 ggtagtccac gctgtaaacy ttgggcgcta ggtgtggggg tcttccacga tctctgtgcc 780  
 56 gtagctaacy cattaagcgc cccgcctggg gagtacggcc gcaaggctaa aactcaaagg 840  
 58 aattgacggg ggcccgcaca agcggcgagg catgttgctt aattcgacgc aacgcgaaga 900  
 60 acctaccaa ggtttgacat acaccggaaa cactcanana tgggtgcctc ctttggactg 960  
 62 gtgtacaggt ggtgcatggc tgtcnnccac ctcgtgtcgt nagatgtngg gttaagtccc 1020  
 64 gcaacgancg caacccttgg ttccatgttg ccagcacncc ctttgnggtg gtggggacnc 1080  
 66 atggganaat gccggggctn actcnggagg aaggtgggga tgacgtcaag tnatentgcc 1140  
 68 cettatgttc ttgnngtg 1158

71 <210> SEQ ID NO: 2

72 <211> LENGTH: 1437

73 <212> TYPE: DNA

74 <213> ORGANISM: actinomycete

76 <220> FEATURE:

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77 <221> NAME/KEY: misc_feature.
78 <222> LOCATION: (1)..(1437)
79 <223> OTHER INFORMATION: "n" is unknown nucleotide
82 <400> SEQUENCE: 2
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85 gcgaacgggt gagtaacacg tgggcaatct gcccttcact ctgggacaag ccctggaaac      120
W--> 87 ggggtctaata accggataac actnctgctc tcatgggcag gggttaaaag ctccggcggt      180
89 gaaggatgag ccgcggcct atcagcttgt tggtagagta atggctcacc aaggcgacga      240
91 cgggtagccg gcctgagagg gcgaccggcc aactggggac tgagacacgg ccagactcc      300
93 tacgggaggc agcagtgggg aatattgcaa caatgggcga aagcctgatg cagcgacgcc      360
95 gcgtgaggga tgacggcctt cgggttgtaa acctctttca gcagggaaga agcgaaagtg      420
97 acggtacctg cagaagaagc gccggctaac tacgtgccag cagccgcggg aatacgtagg      480
99 gcgcaagcgt tgtccggaat tattgggcgt aaagagcttg taggcggctt gtcacgtcgg      540
101 gtgtgaaagc ccggggctta accccgggtc tgcattcgat acgggctagc tagagtgtgg      600
103 taggggagat cgggaattcct ggtgtagcgg tgaaatgcgc agatatcagg aggaacaccg      660
105 gtggcgaagg cggatctctg ggccattact gacgtgagg agcgaaagcg tggggagcga      720
107 acaggattag ataccctggt agtccacgcc gtaaaccggt ggaactaggt gttggcgaca      780
109 ttccacgtcg tcggtgccgc agctaacgca ttaagttccc cgctggggga gtacggccgc      840
111 aaggctaaaa ctcaaaggaa ttgacggggg cccgcacaag cagcggagca tgtggcttaa      900
113 ttcgacgcaa cgcgaagaac cttaccaagg cttgacatac accggaaagc atcagagatg      960
115 gtgccccctt tgtggttcgg tgtacagggt gtgcatgggt gtcgtcagct cgtgtcgtga     1020
117 gatgttggtt taagtccgc aacgagcgca acccttgttc tgtgttgcca gcatgccctt     1080
119 cggggtgatg gggactcaca ggagaccgcc ggggtcaact cggaggaagg tggggacgac     1140
121 gtcaagtcac catgccctt atgtcttggg ctgcacacgt gctacaatgg ccggtacaaa     1200
123 gagctgcgat accgtgaggt ggagcgaatc taaaaagcc ggtctcagtt cggattgggg     1260
125 tctgcaactc gaccccatga agtcggagtt gctaataatc gcanatcagc attgctgcgg     1320
127 tgaatacggt cccgggcctt gtacacaccg cccgtcacgt caccgaaagtc ggtaacaccc     1380
129 gaagccggtg gccaacccct tgtgggaggg agctgtcgaa ggtgggactg gcgattg      1437
132 <210> SEQ ID NO: 3
133 <211> LENGTH: 317
134 <212> TYPE: DNA
135 <213> ORGANISM: actinomycete
137 <220> FEATURE:
138 <221> NAME/KEY: misc_feature
139 <222> LOCATION: (1)..(311)
140 <223> OTHER INFORMATION: "n" is unknown nucleotide
143 <400> SEQUENCE: 3
W--> 144 gtaatggccc anaaaaccgc cttcgccacc ggtgttcctc ctgatatctg cgcatttcac      60
146 cgctacacca ggaattccna tctcccctac cacactctag ctagcccgta tcnaatgcaa      120
148 actcgggggt aagccccnag ctttcacatc cgacgtgaca agccgcctac aanctcttta      180
150 cgcccaataa ttccgganaa cgctcgcacc ctacntntta ccgcggctgc tggcncgtnt      240
152 ttagccggtg cttcttctgc aggtaccgtc actttcgctt cttccctgct naaaaagggt      300
154 tacaacccta nggccgt      317
157 <210> SEQ ID NO: 4
158 <211> LENGTH: 1048
159 <212> TYPE: DNA
160 <213> ORGANISM: actinomycete
162 <220> FEATURE:
163 <221> NAME/KEY: misc_feature

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164 <222> LOCATION: (1)..(1043)
165 <223> OTHER INFORMATION: "n" is unknown nucleotide
168 <400> SEQUENCE: 4
W--> 169 tgagggatga cggcnttcgg ggttgtaaac nttntcacc agggaagaag cgaaagtgnc 60
171 ggtacctgca gaagaagcgc cgnctaacta cgggccagca tccgcggtaa tacgtagggc 120
173 gcaatcggtt tccggaatta ntgggcgtaa agagntcgta ggcggcttat cacgtcgggt 180
175 gtgaaagccc ggggcttaag ccccggtctt gcattcgata cgggctagct agantntgnt 240
177 aggggagatc ggaattcctg gtgtagcggg gaaatgcgca gatatcagga ggaacaccgg 300
179 tggcgaaggc ggatctctgg gccattactg acgctgagga gcgaaagcgt ggggagcgaa 360
181 caggattaga taccctggta gtccacgccg taaacggtgg gaactaggtg ttggcgacat 420
183 tccacgtcgt cgggtgccgca gctaacgcat taagttcccc gcctggggag tacggccgca 480
185 aggctaaaac tcaaaggaat tgacgggggc ccgcacaagc agcggagcat gtggcttaat 540
187 tcgacgcaac gcgaagaacc ttaccaaggc ttgacataca ccggaaagca tcagagatgg 600
189 tgccccctt gtggtcgggtg tacagggtgg gcattggtgt cgtcagctcg tgcgtgaga 660
191 tgttggttta agtcccgcaa cgagcgcaac ccttggttct gtgttgccag catgcccttc 720
193 ggggtgatgg ggactcacag gagaacgccg gggtaactc ggaggaaggt ggggacgacg 780
195 tcaagtcate atgcccccta tgtcttgggc tgcacacgtg ctacaatggc aggtaaatga 840
197 gctgcgatac cgtgaggtgg agcgaatctc aaaaaagcct gtctcanttc ggattggggg 900
199 ctgnaantcg accccatgaa agtcggagtt gctaattatc ccagatcaac attgctggcg 960
201 gtgaatacgt tcccggggcc ttggtaaaca ccgcccgtca angtnaagaa agtcgggtaa 1020
203 cccccgaaan ccggtgggcc aannccct 1048
206 <210> SEQ ID NO: 5
207 <211> LENGTH: 508
208 <212> TYPE: DNA
209 <213> ORGANISM: actinomycete
211 <220> FEATURE:
212 <221> NAME/KEY: misc_feature
213 <222> LOCATION: (1)..(472)
214 <223> OTHER INFORMATION: "n" is unknown nucleotide
217 <400> SEQUENCE: 5
W--> 220 ttccnatctc ccctaccaca ctctanctan cccgtatcga atgcaaaccg ggggttaanc 120
222 cccgggcttt cacaccgcac ntgacaagcc gcctacaacac tctttacgcc caataattcc 180
224 ggacaacgct tgcgccctac ntattaccgc ggctgctggc acntatttag ccggcgcttc 240
226 ttctgcaggt accgtcactt tcgcttcttc cctgctgaaa aaggtttaca acccgaaggc 300
228 cgtcatccct cacgcggcgt cgctgcatca ggctttcgcc cattgtgcaa tattccccac 360
230 tgetgcctcc cntaggaatc tgggcgctgt ctcaatccag tgtggccggg cccctctcng 420
232 gccggctacc gtntccctt ggtnaccatt anctcaccaa caactgatag gncgcgggct 480
234 catcttcacg cgggaacttt caaccacc 508
237 <210> SEQ ID NO: 6
238 <211> LENGTH: 1420
239 <212> TYPE: DNA
240 <213> ORGANISM: actinomycete
242 <400> SEQUENCE: 6
243 ggcggcgtgc ttaacacatg caagtogaac gatgaagccc ttccggggtgg attagtggcg 60
245 aacgggtgag taacacgtgg gcaatctgcc ctctactctg ggacaagccc tggaaacggg 120
247 gtctaatacc ggatacgatt cgggagggat ctcttggtac tggaaagctc cggcggtgaa 180
249 ggatgagccc gcggcctatc agcttggtgt gggtaatggc ctaccaaggc gacgacgggt 240
251 agccggcctg agagggcgac cggccacact gggactgaga cacggcccag actcctacgg 300

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253 gaggcagcag tggggaatat tgcacaatgg gcgaaagcct gatgcagcga cgccgcgtga 360
255 gggatgacgg ccttcgggtt gtaaacctct ttcagcaggg aagaagcgag agtgacggta 420
257 cctgcagaag aagcgccggc taactacgtg ccagcagccg cggtataacg tagggcgcaa 480
259 gcgttggtcc gaattattgg gcgtaaagag ctctagaggc gcttggtcacg tcgggtgtga 540
261 aagccccggg cttaaccccc ggtctgcac cgatacgggc aggttagagt gtggtagggg 600
263 agatcggaat tcttggtgta gcggtgaaat gcgcagatat caggaggaaac accggtggcg 660
265 aaggcggatc tctgggccat tactgacgct gaggagcgaa agcgtgggga gccaacagga 720
267 ttagataccc tggtagtcca cgccgtaaac gttggaacta ggtgttggtg acattccacg 780
269 tcgtcgggtg cgcagctaac gcattaagtt cccgcctgg ggagtacggc cgcaaggcta 840
271 aaactcaaag gaattgacgg gggcccgcac aagcagcggg gcatgtggct taattcgacg 900
273 caacgcgaag aaccttacca aggttgaca tataccggaa agcgccagag atggtgcccc 960
275 ccttggtggtc ggtatacagg tgggtgcatg ctgtcgtcag ctctgtcgt gagatggttg 1020
277 gttaagtccc gcaacgagcg caaccttgt cctgtgttg cagcatgcc ttcggggtga 1080
279 tggggactca caggagaccg ccggggtcaa ctcgaggaa ggtggggacg acgtcaagtc 1140
281 atcatgcccc ttatgtcttg ggtgcacac gtgtacaat ggccggtaca aagagctgcg 1200
283 atgccgtgag gcggagcgaa tctcaaaaag ccggtctcag ttcggattgg ggtctgcaac 1260
285 tcgaccccc gaagtcggag ttgctagtaa tcgcagatca gcattgctgc ggtgaatacg 1320
287 ttcccgggcc ttgtacacac cgccgctcac gtcacgaaag tcggtaacac ccgaagccgg 1380
289 tggcccaacc cctcggggag ggagctgtcg aaggtgggac 1420

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292 &lt;210&gt; SEQ ID NO: 7

293 &lt;211&gt; LENGTH: 1239

294 &lt;212&gt; TYPE: DNA

295 &lt;213&gt; ORGANISM: actinomycete

297 &lt;220&gt; FEATURE:

298 &lt;221&gt; NAME/KEY: misc\_feature

299 &lt;222&gt; LOCATION: (1)..(1217)

300 &lt;223&gt; OTHER INFORMATION: "n" is unknown nucleotide

303 &lt;400&gt; SEQUENCE: 7

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W--> 304 gcttnttggg gggncnatgg cctaccaagg ngaggacggn tancngcct gngagggaga 60
306 ccgnccacac tgggaatgng anacggccca gaatcctac ggaggcagca nnggggaana 120
308 ttgcacaang ggcgaaagcc tgatgcagng angccgcgtg agggaagacg gcctttgggt 180
310 tgtaaacctn tttnagcagg gaagaagcga aagtgcagg acctgcagaa gaagcgccgg 240
312 ctaantangt gccagcagcc gcggtaatn gtagggcgca agcgttgtcc ggaattattg 300
314 ggcgtaaaaga gctttaggc ggttggtcan gtnggatgtg aaagccggg gcttaacccc 360
316 ggggtttgcat ttgatacggg cttagctagag tgtggtaggg gagatnggaa ttcctgtgtg 420
318 agcggtgaaa tgcgcagata tcaggaggaa caccggtggc gaaggcggat ctctgggcca 480
320 ttactgacgc tgaggagcga aagcgtgggg agcgaacagg attagatacc ctggtagtcc 540
322 acgccgtaaa cgttgggaac taggtgttg cgacattcca cgtcgtcggg gccgcagcta 600
324 acgcattaag tccccgcct ggggagtag gcgcgaaggc taaaactcaa aggaattgac 660
326 gggggcccg cacaagcagc gagcatgtgg cttaattcga cgcaacgcga agaaccttac 720
328 caaggcttga catataccgg aaagcatcag agatggtgcc ccccttgtgg tcggtataca 780
330 ggtggtgcat ggctgtcgtc agctcgtgtc gtgagatgtt ggggttaagtc ccgcaacgag 840
332 cgcaaccctt gttctgtgtt gccagcatgc ccttcggggg gatggggact cacaggagac 900
334 tggcgggggt aactcggagg aaggtgggga cgacgtcaag tcatcatgcc ccttatgtct 960
336 tgggggtgca cacgtgctac aatggccggg acaatgagct gcgatgccgc gaggcgggagc 1020
338 gaatctcaaa aagccggtct cagttcggat tgggggtctg naactcgacc ccatgaantc 1080
340 ggagttgcta ataattccaa attcancatt ggtgcggtga atacttccc ggctggtac 1140
342 acnaccgccc gtcaactcac gaaagtcggg naaacccgaa accggtgggc caacccttg 1200
344 tgggaaggaa ctggccnaag tgggactggc gattgggac 1239

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TIME: 11:51:09

Input Set : A:\19460.seq.txt

Output Set: N:\CRF4\02082007\J563637.raw

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347 <210> SEQ ID NO: 8
348 <211> LENGTH: 431
349 <212> TYPE: DNA
350 <213> ORGANISM: actinomycete
352 <220> FEATURE:
353 <221> NAME/KEY: misc_feature
354 <222> LOCATION: (1)..(424)
355 <223> OTHER INFORMATION: "n" is unknown nucleotide
358 <400> SEQUENCE: 8
359 ccgccttcgc caccggtggt cctcctgata tctgcgcatt tcaccgctac accaggaatt      60
W--> 361 ccnatctccc ctaccacact ctagctagcc cgtatcaaat gcaaaccggg gggttaagccc      120
363 cgggctttca catccnacgt gacaagccgc ctacaanctc tttagcccca ataattccgg      180
365 acaacgcttg cgccctacnt attaccgagg ctgctggcac ntatttagcc ggcgcttctt      240
367 ctgcaggtag cgtcactttc gctncttccc tgctgaaana ggtttacaac ccaaaggccn      300
369 tcateccctn ccggcntcnt tgcntcnggc ttncncccat tgttcaannt tccccactgc      360
371 tncctcccc cccaatctgg gccgntgtct cattcccntt ntggccgggc cccctcncag      420
373 gccngctacc c
376 <210> SEQ ID NO: 9
377 <211> LENGTH: 653
378 <212> TYPE: DNA
379 <213> ORGANISM: actinomycete
381 <220> FEATURE:
382 <221> NAME/KEY: misc_feature
383 <222> LOCATION: (1)..(640)
384 <223> OTHER INFORMATION: "n" is unknown nucleotide
387 <400> SEQUENCE: 9
W--> 388 ctcagcgctn gtaatggccc aaaaaccggc ttccgccacc gtgttcctcc tgatatctgc      60
390 gcatttcacc gctacaccag gaattccnat ctcccttacc acactctagc tagcccgat      120
392 cnaatgcaaa cccgggggta anccccgggc ttccacatcc nacntgacaa gccgcctaca      180
394 anctctttac gcccaataat tccggacaac gcttgcnccc tacttattac cgcggctgct      240
396 ggcacttatt tagccggcgc ttcttctgca ggtaccgtca ctttcgcttc ttccctgctn      300
398 aaaaagggtt acaaccnnaa ggccgtcctc cctcacgcgg cntcgctgca tcaggctttc      360
400 nccattgtg caatattccc cactgctgcc tcccgtagga ttctgggccc tntctcattc      420
402 ccantgtggc cggtcgccct ctcaggccgg ctaccgctn tnccttggg aggccattac      480
404 cccaccaaca agctnatagg ccgcgggctc atccttcacc gccggaagct ttcaaccccn      540
406 tccatgcggg anaaattggt ntccggtatt aaaccccggt tccagggnnt gtcccaaat      600
408 tgaagggggg attgnccact ttttactcac ccgttcnccn ctaatccacc acc          653
411 <210> SEQ ID NO: 10
412 <211> LENGTH: 1444
413 <212> TYPE: DNA
414 <213> ORGANISM: actinomycete
416 <400> SEQUENCE: 10
417 acgaacgctg gcggcgtgct taacacatgc aagtcgaacg atgaagccgc ttcggtgggtg      60
419 gattagtggc gaacgggtga gtaacacgtg ggcaatctgc ccttcactct gggacaagcc      120
421 ctggaaacgg ggtctaatac cggataacac tctgtcccgc atgggacggg gttgaaagct      180
423 ccggcgggtg aggatgagcc cgcggcctat cagcttggtg gtggggtaat ggcctaccaa      240
425 ggcgacgacg ggtagccggc ctgagagggc gaccggccac actgggactg agacacggcc      300
427 cagactccta cgggaggcag cagtggggaa tattgcacaa tgggcgaaag cctgatgcag      360
429 cgacgccgcg tgagggatga cggccttcgg gttgtaaacc tctttcagca ggaagaagc      420

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Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:1; N Pos. 15,46,51,68,72,98,139,159,165,341,368,382,436,458,475,545  
Seq#:1; N Pos. 937,939,985,986,1001,1008,1028,1058,1066,1079,1087,1100,1105  
Seq#:1; N Pos. 1132,1136,1154,1156  
Seq#:2; N Pos. 144,1304  
Seq#:3; N Pos. 12,79,113,138,173,198,215,217,235,239,291,311  
Seq#:4; N Pos. 15,31,35,59,83,141,155,234,236,239,887,904,907,1002,1005  
Seq#:4; N Pos. 1030,1043  
Seq#:5; N Pos. 65,86,90,119,141,201,223,372,419,434,444,452,472  
Seq#:7; N Pos. 5,14,16,31,40,43,46,52,64,79,82,111,112,119,129,149,152,190  
Seq#:7; N Pos. 194,245,248,270,330,333,406,1061,1078,1106,1143,1171,1217  
Seq#:8; N Pos. 63,136,157,199,221,264,279,300,310,316,319,324,327,333,335  
Seq#:8; N Pos. 348,349,362,385,398,401,417,424  
Seq#:9; N Pos. 10,88,122,142,161,164,182,217,300,318,342,361,412,424,460  
Seq#:9; N Pos. 463,495,540,552,561,588,615,637,640  
Seq#:11; N Pos. 63,84,97,139,157,166,199,221,303,393,399,401,425,449,457  
Seq#:11; N Pos. 465,485,487,499  
Seq#:12; N Pos. 5,14,30,66,68,133,146,158,190,272,342,366,384,520,523,542  
Seq#:12; N Pos. 575,596,808,834,860,873,895,964,971,982,1034,1042,1052,1055  
Seq#:12; N Pos. 1070,1089,1094,1112,1144  
Seq#:13; N Pos. 6,13,17,22,28,37,39,57,61,84,100,104,118,239,245,411,433  
Seq#:13; N Pos. 475,493  
Seq#:14; N Pos. 75,80,997,1382  
Seq#:15; N Pos. 63,88,97,136,139,141,146,299,317,374,376,387,393,405,438  
Seq#:15; N Pos. 442,446,455,456,530,533,547  
Seq#:16; N Pos. 149,251,571,582,653,798,826,838,1362  
Seq#:17; N Pos. 638  
Seq#:18; N Pos. 9,20,23,57,59,106,122,124,183,432,454,517,674,698,704,747  
Seq#:18; N Pos. 772,773,781,828,844,846,847,879,883,889,973,1039,1045,1223  
Seq#:18; N Pos. 1367  
Seq#:19; N Pos. 61,98,112,139,168,249,363,421,443,503,579,687,923,954,1000  
Seq#:19; N Pos. 1017,1035,1037,1051,1069,1077,1106,1113,1114,1140,1153,1156  
Seq#:20; N Pos. 769,843,902,911,926,1112,1182,1206,1207,1331,1341,1392,1404  
Seq#:21; N Pos. 6,306,391,402,431  
Seq#:22; N Pos. 6,18,25,184,275,324,363,369,382,385,394,433,469,493,498,516  
Seq#:22; N Pos. 522,534,564,573,598,603,625,633,638,643  
Seq#:23; N Pos. 520,523,593,623,631,643,648  
Seq#:24; N Pos. 9,15,376,385,424,485,490,505,521,557,565,580,595,625,629  
Seq#:24; N Pos. 646,666  
Seq#:25; N Pos. 459,485,490,506,518,540,567,658  
Seq#:26; N Pos. 517,622,630,640,687  
Seq#:27; N Pos. 9,384,393,413,465  
Seq#:28; N Pos. 17,23,392,491,493,496,514,527,571,617,625,638  
Seq#:29; N Pos. 8,112,166,213,239,340,427,448,503,537,553,555,560,566,578  
Seq#:29; N Pos. 596,606,615,626,638,644,658,662,666

RAW SEQUENCE LISTING ERROR SUMMARY  
PATENT APPLICATION: US/10/563,637

DATE: 02/08/2007  
TIME: 11:51:10

Input Set : A:\19460.seq.txt  
Output Set: N:\CRF4\02082007\J563637.raw

Seq#:30; N Pos. 14,442,445,463,471,490,495,510,571,584,599,618



## VERIFICATION SUMMARY

DATE: 02/08/2007

PATENT APPLICATION: US/10/563,637

TIME: 11:51:10

Input Set : A:\19460.seq.txt

Output Set: N:\CRF4\02082007\J563637.raw

L:30 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1 after pos.:0  
M:341 Repeated in SeqNo=1  
L:87 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:120  
M:341 Repeated in SeqNo=2  
L:144 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:0  
M:341 Repeated in SeqNo=3  
L:169 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:0  
M:341 Repeated in SeqNo=4  
L:220 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5 after pos.:60  
M:341 Repeated in SeqNo=5  
L:304 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:7 after pos.:0  
M:341 Repeated in SeqNo=7  
L:361 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:8 after pos.:60  
M:341 Repeated in SeqNo=8  
L:388 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9 after pos.:0  
M:341 Repeated in SeqNo=9  
L:482 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11 after pos.:60  
M:341 Repeated in SeqNo=11  
L:511 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:12 after pos.:0  
M:341 Repeated in SeqNo=12  
L:564 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:13 after pos.:0  
M:341 Repeated in SeqNo=13  
L:627 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:14 after pos.:60  
M:341 Repeated in SeqNo=14  
L:688 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:15 after pos.:60  
M:341 Repeated in SeqNo=15  
L:723 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:16 after pos.:120  
M:341 Repeated in SeqNo=16  
L:800 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:17 after pos.:600  
L:841 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:18 after pos.:0  
M:341 Repeated in SeqNo=18  
L:902 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:19 after pos.:60  
M:341 Repeated in SeqNo=19  
L:977 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:20 after pos.:720  
M:341 Repeated in SeqNo=20  
L:1014 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:21 after pos.:0  
M:341 Repeated in SeqNo=21  
L:1047 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:22 after pos.:0  
M:341 Repeated in SeqNo=22  
L:1100 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:23 after pos.:480  
M:341 Repeated in SeqNo=23  
L:1121 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:24 after pos.:0  
M:341 Repeated in SeqNo=24  
L:1172 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:25 after pos.:420  
M:341 Repeated in SeqNo=25  
L:1211 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:26 after pos.:480  
M:341 Repeated in SeqNo=26  
L:1232 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27 after pos.:0

**VERIFICATION SUMMARY**

PATENT APPLICATION: US/10/563,637

DATE: 02/08/2007

TIME: 11:51:10

Input Set : A:\19460.seq.txt

Output Set: N:\CRF4\02082007\J563637.raw

M:341 Repeated in SeqNo=27

L:1263 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:28 after pos.:0